Curriculum Vitae

Neal W. Woodbury
Updated September 10, 2018
nwoodbury@asu.edu, 480-965-4430

Education:

University of Washington. Ph.D., Biochemistry	1986
University of California at Davis. B.S., Biochemistry	1979

Professional Experience:

Senior Advisor to the Executive Vice President for Strategic Projects, Office of Knowledge Enterprise Development	2018 – present
Director, School of Molecular Sciences	2016 – present
Faculty, Center for Innovations in Medicine, Biodesign Institute	2016 – present
Faculty, Global Security Initiative	2016 – present
Member of Directorate of the Biodesign Institute	2011 – 2016
Co-Director of the Center for Innovations in Medicine Biodesign Institute at ASU	2010 – 2016
Senior Sustainability Scientist, Global Institute of Sustainability at ASU	2010 – present
Chief Scientific Officer, Biodesign Institute at ASU	2010 – 2011
Faculty Associate, Center for Single Molecule Biophysics, Biodesign Institute at ASU	2010 – present
Deputy Director, Biodesign Institute at ASU	2008 – 2009
Director, Center for BioOptical Nanotechnology, Biodesign Institute at ASU	2004 – 2010
Director, NSF IGERT Biomolecular Nanotechnology	2000 – 2009
Arizona State University, Prof. Chemistry and Biochemistry	1998 – present
Director, NSF RTG Optical Biomolecular Dev. Program	1996 – 2002
Director, Photosynthesis Center	1997 – 2000
Assoc. Prof. Chemistry and Biochemistry, ASU	1994 – 1998
Asst. Prof. Chemistry and Biochemistry, ASU	1987 – 1994
Stanford University, NSF Postdoctoral Fellow with S. Boxer	1987 – 1988
Carnegie Inst. of Washington, Dept. of Plant Biology, NSF Postdoctoral fellow with W. Thompson	1986 – 1987
Univ. of Washington, Graduate Research with W. Parson	1979 – 1986

Honors, Awards, and Service to the Profession:

NSF Physics of life panel member	2010 – present
NSF CBET panel member	2012 – 2014
NSF MCB panel member	2013 – present
NSF BIO postdoctoral fellowship panel member	2014 – 2015
Senior Sustainability Scientist, Global Institute of Sustainability	2010 – present
Gary Krahenbuhl Difference Maker Award, recipient	2008
Professor of the Year, nominee	2008
Professor of the Year, nominee	2007
National Academy of Science Workshop Chemical Imaging Committee Member	2005
NSF MPS-MCB Joint Review Panel member	2004 – 2013
NSF Biophysics Panel member	1997 – 1999
Outstanding Supervisor Award	2004

American Chemical Society Panel Member	2004 – 2005
Photochemistry and Photobiology, Associate Editor	2002 – 2009
NSF IGERT Panel member	2002 – 2006
NSF Bio. Inst. Dev. Panel member	1998
NSF Presidential Young Investigator Award	1991
NSF Postdoctoral Fellowship in Plant Molecular Biology	1985

Current Undergraduate Students in Woodbury Laboratory:

Daiana Sharaf	Mielia Brooks
Natalie Akram	Travis Dillon

Current Graduate Students in Woodbury Laboratory:

Robayet Chowdhury	Akanksha Singh
Kirstie Swingle	Pritha Bisarad
Symon Levenberg	

Current Postoctoral Fellows in Woodbury Laboratory:

TBD	

Graduate Theses Mentored:

Weizhong Xiao, 1994, Energy and electron transfer in Rhodobacter capsulatus, Citibank

Dennis Gallo, 1994, Chimeric mutagenesis of the Rb. capsulatus reaction center : an exploration of the structure/function relationship, Senior Manager at Abbott Diagnostics

Jeffrey Peloquin, 1994, Time-resolved spectroscopic studies of photosynthetic reaction centers from Rhodobacter sphaeroides, deceased (previously Professor at Boise State University, Department of Chemistry & Biochemistry)

Martin Thompson, 2000, Synthesis and characterization of the photophysical and photochemical properties of sequence specific DNA-binding probes, Associate Professor, Michigan Technological University

Elizabeth Eastman, 2000, Large scale mutagenesis of the Rhodobacter capsulatus reaction center : kinetic and spectral aspects graduated, last known profession- high school teacher

Evaldas Katilius, 2002, B-side electron transfer investigations in the Rhodobacter sphaeroides reaction center, Scientist at SomaLogic in Denver, CO

Arlene Haffa, 2002, Energetics and mechanism in primary electron transfer of bacterial photosynthesis Assistant Professor at University of Wisconsin at Oshkosh, recently offered an Assistant Professorship in Microbiologyat Cal State University Monterey Bay

Jonathan Jackson, 2003, Conformational heterogeneity and energy transfer in photoactive proteins, Product Engineering Group Leader at Microchip Technology, Chandler, AZ

Ben Bowen, 2003, Single-molecule spectroscopy of fluorescent biomolecules, Research Scientist, Lawrence Berkeley National Laboratory, BPBowen@lbl.gov, (510)486-5138

Zivile Katiliene, 2004, Investigations of energy trapping in photosynthesis and of DNA looping by endonuclease, Quality Assurance Manager & Clinical Research Database Manager at the University of Colorado Cancer Center Clinical Investigational Core; University of Colorado Hospital

Trent Northen, 2005, Light-directed synthesis and in situ MALDI-MS characterization of complex bioheteropolymer microarrays, Scientist at Lawrence Berkeley National Laboratory

Allan Scruggs, 2004, Optical selection in directed evolution and lifetime mutants of green fluorescent protein, General Chemistry Lecturer at ASU

Teresa Murray, 2009, Shedding light on nicotinic acetylcholine receptors: creation and use of fluorescently tagged receptors, Postdoctoral Associate, Yale University

Jason Lappe, 2009, Photoreactivation and Positive Cell Selection for the Directed Evolution of Proteins, Research Scientist, Moregate Biotech, Brisbane, Australia

Matt Greving, 2009, Creating High-Affinity Ligands on Surfaces and in Solution, Research Associate - Center for Metabolomics and Mass Spectrometry at The Scripps Research Institute, Chief Scientific Officer at Nextval Inc.

Jinglin Fu, 2010, Exploring Peptide Space for Enzyme Modulation, Center for Single Molecule Biophysics & Center for Innovations in Medicine, Rutgers Faculty

Jack S. Emery, 2010, Computational Modeling of Peptide-Protein Binding, Patent Attorney at Private Patent Law Practice

Zhi Gou, 2012, The role of protein dielectric relaxation in modulating the electron transfer process in photosynthetic reaction centers, Notre Dame

Pallav Kumar, 2013, Development of Chip-Based Electrochemically and Light Directed Peptide Microarray Synthesis, Community College faculty

Wei Wang, 2014, Exploring the Nature of Protein-Peptide Interactions on Surfaces, ASU East teaching faculty

Postdoctoral Fellows Sponsored:

Arlene Haffa, Assistant Professor University of Wisconsin at Oshkosh

Douglas Daniel, Assistant Research Professional, ASU

Zivile Katiliene, Database Manager at the University of Colorado Health Sciences Center

Kou Timpmann, Sr. Research Fellow at the Inst. of Physics in Estonia

Evaldas Katilius, Scientist at SomaLogic in Denver, CO

Heather Murchison, Group Manager, OCG Localization at Microsoft Corporation

Arman Ghodousi, lieutenant and scientist in the Materials Branch of the Chemistry Division at the Naval Research Laboratory

Hadi Tabbara, Scientist, UT system

Laimonas Kelbauskas, Associate Research Scientist, Center for Biosignatures Discovery Automation, Biodesign Institute at ASU

Haiyu Wang, Assistant Professor, State Key Laboratory on Integrated Optoelectronics, Jilin University, China

Allan Scruggs, Lecturer at Washington State University

Jie Pan, Senior Scientist, University of Michigan

Jinglin Fu, Professor, Rutgers University

Alessio Andreoni, NIH, research scientist

Anne-Marie Carey, Instructor, Tokyo

Sarthak Mandal, Assistant Professor, National Institute of Technology Trichy, India

Collaborators and Co-Editors

Arizona State University: James Allen, Yi Chen, Nicholas Colaneri; Stephen Johnston, Joshua LaBaer, Su Lin, Stuart Lindsay, Yan Liu, Dmitry Matyushov; Deirdre Meldrum; Jose Menendez, Ana Moore, Thomas Moore, George Poste, Bruce Rittman, Phillip Stafford, Kathryn Sykes; Nongjian Tao, Trevor Thornton, Shaopeng Wang, JoAnn Williams, Hao Yan, Zhan-Gong Zhao, Don Seo

Other: Thomas Beatty (U of British Columbia); Stephen Casalnuovo, SNL; Harry Frank, Univ. of Connecticut; Arvi Freiberg, Inst. of Physics, Estonia; Matthew Greving, Scripps Research Institute; Evaldas Katilius, *SomaLogic*, CO; Ron Lukas, Barrows Neurological ; Gabriel A. Montaño, Ctr for Integrated Nanotechnologies; Robert A. Niederman, Rutgers Univ.; Trent Northen, Lawrence Berkeley National Laboratory; Tom Slezak, LLNL;

Publications

1. Boulais, E.; Sawaya, N. P. D.; Veneziano, R.; Andreoni, A.; Banal, J. L.; Kondo, T.; Mandal, S.; Lin, S.; Schlau-Cohen, G. S.; Woodbury, N. W.; Yan, H.; Aspuru-Guzik, A.; Bathe, M., Programmed coherent coupling in a synthetic DNA-based excitonic circuit. *Nat Mater* **2018,** *17* (2), 159-166.
2. Zhao, Z. G.; Cordovez, L. A.; Johnston, S. A.; Woodbury, N., Peptide Sequencing Directly on Solid Surfaces Using MALDI Mass Spectrometry. *Scientific Reports* **2017,** *7*.
3. Zhang, H. J.; Carey, A. M.; Jeon, K. W.; Liu, M. H.; Murrell, T. D.; Locsin, J.; Lin, S.; Yan, H.; Woodbury, N.; Seo, D. K., A highly stable and scalable photosynthetic reaction center-graphene hybrid electrode system for biomimetic solar energy transduction. *Journal of Materials Chemistry A* **2017,** *5* (13), 6038-6041.
4. Mandal, S.; Carey, A. M.; Locsin, J.; Gao, B. R.; Williams, J. C.; Allen, J. P.; Lin, S.; Woodbury, N. W., Mechanism of Triplet Energy Transfer in Photosynthetic Bacterial Reaction Centers. *J Phys Chem B* **2017,** *121* (27), 6499-6510.
5. Carey, A. M.; Zhang, H.; Liu, M.; Sharaf, D.; Akram, N.; Yan, H.; Lin, S.; Woodbury, N. W.; Seo, D. K., Enhancing Photocurrent Generation in Photosynthetic Reaction Center-Based Photoelectrochemical Cells with Biomimetic DNA Antenna. *ChemSusChem* **2017,** *10* (22), 4457-4460.
6. Andreoni, A.; Lin, S.; Liu, H.; Blankenship, R. E.; Yan, H.; Woodbury, N. W., Orange Carotenoid Protein as a Control Element in an Antenna System Based on a DNA Nanostructure. *Nano Lett* **2017,** *17* (2), 1174-1180.
7. Zhao, Z.; Fu, J. L.; Dhakal, S.; Johnson-Buck, A.; Liu, M. H.; Zhang, T.; Woodbury, N. W.; Liu, Y.; Walter, N. G.; Yan, H., Nanocaged enzymes with enhanced catalytic activity and increased stability against protease digestion. *Nat Commun* **2016,** *7*.
8. Sun, C.; Carey, A. M.; Gao, B. R.; Wraight, C. A.; Woodbury, N. W.; Lin, S., Ultrafast Electron Transfer Kinetics in the LM Dimer of Bacterial Photosynthetic Reaction Center from Rhodobacter sphaeroides. *J Phys Chem B* **2016,** *120* (24), 5395-5404.
9. Pan, J.; Saer, R.; Lin, S.; Beatty, J. T.; Woodbury, N. W., Electron Transfer in Bacterial Reaction Centers with the Photoactive Bacteriopheophytin Replaced by a Bacteriochlorophyll through Coordinating Ligand Substitution. *Biochemistry-Us* **2016,** *55* (35), 4909-4918.
10. Liu, M. H.; Fu, J. L.; Qi, X. D.; Wootten, S.; Woodbury, N. W.; Liu, Y.; Yan, H., A Three-Enzyme Pathway with an Optimised Geometric Arrangement to Facilitate Substrate Transfer. *Chembiochem* **2016,** *17* (12), 1097-1101.
11. Carey, A. M.; Zhang, H.; Mieritz, D.; Volosin, A.; Gardiner, A. T.; Cogdell, R. J.; Yan, H.; Seo, D. K.; Lin, S.; Woodbury, N. W., Photocurrent Generation by Photosynthetic Purple Bacterial Reaction Centers Interfaced with a Porous Antimony-Doped Tin Oxide (ATO) Electrode. *ACS Appl Mater Interfaces* **2016,** *8* (38), 25104-10.
12. Boulais, E.; Sawaya, N.; Veneziano, R.; Andreoni, A.; Lin, S.; Woodbury, N.; Yan, H.; Aspuru-Guzik, A.; Bathe, M., A DNA-Based Building Block for Designer Excitonic Circuits. *Biophys J* **2016,** *110* (3), 313a-313a.
13. Andreoni, A.; Lin, S.; Liu, H. J.; Yan, H.; Blankenship, R. E.; Woodbury, N. W., Light-Activated Photo Protection in an Artificial Antenna System. *Biophys J* **2016,** *110* (3), 198a-199a.

14. Wang, W.; Woodbury, N. W., Unstructured interactions between peptides and proteins: Exploring the role of sequence motifs in affinity and specificity. *Acta biomaterialia* **2015,** *11*, 88-95.
15. Woodbury, N. J.; George, V. A., A comparison of the nutritional quality of organic and conventional ready-to-eat breakfast cereals based on NuVal scores. *Public Health Nutr* **2014,** *17* (7), 1454-1458.
16. Wang, W.; Woodbury, N. W., Selective protein-peptide interactions at surfaces. *Acta biomaterialia* **2014,** *10* (2), 761-768.
17. Stafford, P.; Cichacz, Z.; Woodbury, N. W.; Johnston, S. A., Immunosignature system for diagnosis of cancer. *Proc Natl Acad Sci U S A* **2014,** *111* (30), E3072-80.
18. Saer, R. G.; Pan, J.; Hardjasa, A.; Lin, S.; Rosell, F.; Mauk, A. G.; Woodbury, N. W.; Murphy, M. E.; Beatty, J. T., Structural and kinetic properties of Rhodobacter sphaeroides photosynthetic reaction centers containing exclusively Zn-coordinated bacteriochlorophyll as bacteriochlorin cofactors. *Biochim Biophys Acta* **2014,** *1837* (3), 366-74.
19. Navalkar, K. A.; Johnston, S. A.; Woodbury, N.; Galgiani, J. N.; Magee, D. M.; Chicacz, Z.; Stafford, P., Application of Immunosignatures for Diagnosis of Valley Fever. *Clin Vaccine Immunol* **2014,** *21* (8), 1169-1177.
20. Legutki, J. B.; Zhao, Z. G.; Greving, M.; Woodbury, N.; Johnston, S. A.; Stafford, P., Scalable High-Density Peptide Arrays for Comprehensive Health Monitoring. *Nat Commun* **2014,** *5*, 4785.
21. Fu, J. L.; Yang, Y. R.; Johnson-Buck, A.; Liu, M. H.; Liu, Y.; Walter, N. G.; Woodbury, N. W.; Yan, H., Multi-enzyme complexes on DNA scaffolds capable of substrate channelling with an artificial swinging arm. *Nature nanotechnology* **2014,** *9* (7), 531-536.
22. Dutta, P. K.; Lin, S.; Loskutov, A.; Levenberg, S.; Jun, D.; Saer, R.; Beatty, J. T.; Liu, Y.; Yan, H.; Woodbury, N. W., Reengineering the Optical Absorption Cross-Section of Photosynthetic Reaction Centers. *J Am Chem Soc* **2014,** *136* (12), 4599-4604.
23. Dutta, P. K.; Levenberg, S.; Loskutov, A.; Jun, D.; Saer, R.; Beatty, J. T.; Lin, S.; Liu, Y.; Woodbury, N. W.; Yan, H., A DNA-Directed Light-Harvesting/Reaction Center System. *J Am Chem Soc* **2014,** *136* (47), 16618-16625.
24. Driscoll, B.; Lunceford, C.; Lin, S.; Woronowicz, K.; Niederman, R. A.; Woodbury, N. W., Energy transfer properties of Rhodobacter sphaeroides chromatophores during adaptation to Low light intensity. *Physical Chemistry Chemical Physics* **2014,** *16* (32), 17133-17141.
25. Pan, J.; Saer, R. G.; Lin, S.; Guo, Z.; Beatty, J. T.; Woodbury, N. W., The Protein Environment of the Bacteriopheophytin Anion Modulates Charge Separation and Charge Recombination in Bacterial Reaction Centers. *J Phys Chem B* **2013,** *117* (24), 7179-7189.
26. Liu, M. H.; Fu, J. L.; Hejesen, C.; Yang, Y. H.; Woodbury, N. W.; Gothelf, K.; Liu, Y.; Yan, H., A DNA tweezer-actuated enzyme nanoreactor. *Nat Commun* **2013,** *4*.
27. LeBard, D. N.; Martin, D. R.; Lin, S.; Woodbury, N. W.; Matyushov, D. V., Protein dynamics to optimize and control bacterial photosynthesis. *Chem Sci* **2013,** *4* (11), 4127-4136.
28. Guo, Z.; Lin, S.; Woodbury, N. W., Utilizing the Dynamic Stark Shift as a Probe for Dielectric Relaxation in Photosynthetic Reaction Centers During Charge Separation. *J Phys Chem B* **2013,** *117* (38), 11383-11390.
29. Wang, H. Y.; Hao, Y. W.; Jiang, Y.; Lin, S.; Woodbury, N. W., Role of Protein Dynamics in Guiding Electron-Transfer Pathways in Reaction Centers from Rhodobacter sphaeroides. *J Phys Chem B* **2012,** *116* (1), 711-717.
30. Pan, J.; Lin, S.; Woodbury, N. W., Bacteriochlorophyll Excited-State Quenching Pathways in Bacterial Reaction Centers with the Primary Donor Oxidized. *J Phys Chem B* **2012,** *116* (6), 2014-2022.
31. Irenge, L. M.; Gala, J. L., Rapid detection methods for Bacillus anthracis in environmental samples: a review. *Appl Microbiol Biot* **2012,** *93* (4), 1411-1422.

32. Guo, Z.; Woodbury, N. W.; Pan, J.; Lin, S., Protein Dielectric Environment Modulates the Electron-Transfer Pathway in Photosynthetic Reaction Centers. *Biophys J* **2012,** *103* (9), 1979-1988.
33. Fu, J. L.; Liu, M. H.; Liu, Y.; Woodbury, N. W.; Yan, H., Interenzyme Substrate Diffusion for an Enzyme Cascade Organized on Spatially Addressable DNA Nanostructures. *J Am Chem Soc* **2012,** *134* (12), 5516-5519.
34. Pan, J.; Lin, S.; Allen, J. P.; Williams, J. C.; Frank, H. A.; Woodbury, N. W., Carotenoid Excited-State Properties in Photosynthetic Purple Bacterial Reaction Centers: Effects of the Protein Environment. *J Phys Chem B* **2011,** *115* (21), 7058-7068.
35. Guo, Z.; Lin, S.; Xin, Y. Y.; Wang, H. Y.; Blankenship, R. E.; Woodbury, N. W., Comparing the Temperature Dependence of Photosynthetic Electron Transfer in Chloroflexus aurantiacus and Rhodobactor sphaeroides Reaction Centers. *J Phys Chem B* **2011,** *115* (38), 11230-11238.
36. Fu, J. L.; Reinhold, J.; Woodbury, N. W., Peptide-Modified Surfaces for Enzyme Immobilization. *Plos One* **2011,** *6* (4).
37. Greving, M. P.; Kumar, P.; Zhao, Z. G.; Woodbury, N. W., Feature-Level MALDI-MS Characterization of in Situ-Synthesized Peptide Microarrays. *Langmuir* **2010,** *26* (3), 1456-1459.
38. Greving, M. P.; Belcher, P. E.; Diehnelt, C. W.; Gonzalez-Moa, M. J.; Emery, J.; Fu, J. L.; Johnston, S. A.; Woodbury, N. W., Thermodynamic Additivity of Sequence Variations: An Algorithm for Creating High Affinity Peptides Without Large Libraries or Structural Information. *Plos One* **2010,** *5* (11).
39. Greving, M. P.; Belcher, P. E.; Cox, C. D.; Daniel, D.; Diehnelt, C. W.; Woodbury, N. W., High-throughput screening in two dimensions: Binding intensity and off-rate on a peptide microarray. *Anal Biochem* **2010,** *402* (1), 93-95.
40. Fu, J. L.; Cai, K.; Johnston, S. A.; Woodbury, N. W., Exploring Peptide Space for Enzyme Modulators. *J Am Chem Soc* **2010,** *132* (18), 6419-6424.
41. Williams, B. A. R.; Diehnelt, C. W.; Belcher, P.; Greving, M.; Woodbury, N. W.; Johnston, S. A.; Chaput, J. C., Creating Protein Affinity Reagents by Combining Peptide Ligands on Synthetic DNA Scaffolds. *J Am Chem Soc* **2009,** *131* (47), 17233-17241.
42. Wang, H. Y.; Lin, S.; Katilius, E.; Laser, C.; Allen, J. P.; Williams, J. C.; Woodbury, N. W., Unusual Temperature Dependence of Photosynthetic Electron Transfer due to Protein Dynamics. *J Phys Chem B* **2009,** *113* (3), 818-824.
43. Lin, S.; Jaschke, P. R.; Wang, H. Y.; Paddock, M.; Tufts, A.; Allen, J. P.; Rosell, F. I.; Mauk, A. G.; Woodbury, N. W.; Beatty, J. T., Electron transfer in the Rhodobacter sphaeroides reaction center assembled with zinc bacteriochlorophyll. *P Natl Acad Sci USA* **2009,** *106* (21), 8537-8542.
44. Kelbauskas, L.; Yodh, J.; Woodbury, N.; Lohr, D., Intrinsic Promoter Nucleosome Stability/Dynamics Variations Support a Novel Targeting Mechanism. *Biochemistry-Us* **2009,** *48* (20), 4217-4219.
45. Kelbauskas, L.; Woodbury, N.; Lohr, D., DNA sequence-dependent variation in nucleosome structure, stability, and dynamics detected by a FRET-based analysis. *Biochem Cell Biol* **2009,** *87* (1), 323-335.
46. Allen, J. P.; Cordova, J. M.; Jolley, C. C.; Murray, T. A.; Schneider, J. W.; Woodbury, N. W.; Williams, J. C.; Niklas, J.; Klihm, G.; Reus, M.; Lubitz, W., EPR, ENDOR, and Special TRIPLE measurements of P center dot+ in wild type and modified reaction centers from Rb. sphaeroides. *Photosynth Res* **2009,** *99* (1), 1-10.
47. Woodbury, N. W.; Wang, H. Y.; Lin, S.; Greving, M.; Laser, C.; Katilius, E.; Allen, J.; Williams, J.; Kumar, P.; Scruggs, A.; Miller, A.; Kelbasukas, L.; Lohr, D., ANYL 195-Powering and controling (bio)chemistry with light. *Abstr Pap Am Chem S* **2008,** *236*.

48. Wang, H. Y.; Lin, S.; Woodbury, N. W., Excitation Wavelength Dependence of Primary Charge Separation in Reaction Centers from Rhodobacter sphaeroides. *J Phys Chem B* **2008,** *112* (45), 14296-14301.
49. Northen, T. R.; Greving, M. P.; Woodbury, N. W., Combinatorial Screening of Biomimetic Protein Affinity Materials. *Adv Mater* **2008,** *20* (24), 4691-+.
50. Kelbauskas, L.; Sun, J.; Woodbury, N.; Lohr, D., Nucleosomal stability and dynamics vary significantly when viewed by internal versus terminal labels. *Biochemistry-Us* **2008,** *47* (36), 9627-9635.
51. Kelbauskas, L.; Chan, N.; Bash, R.; DeBartolo, P.; Sun, J.; Woodbury, N.; Lohr, D., Sequence-dependent variations associated with H(2)A/H2B depletion of nucleosomes. *Biophys J* **2008,** *94* (1), 147-158.
52. Chaput, J. C.; Woodbury, N. W.; Stearns, L. A.; Williams, B. A. R., Creating protein biocatalysts as tools for future industrial applications. *Expert Opin Biol Th* **2008,** *8* (8), 1087-1098.
53. Wang, H. Y.; Lin, S.; Allen, J. P.; Williams, J. C.; Blankert, S.; Laser, C.; Woodbury, N. W., Protein dynamics control the kinetics of initial electron transfer in photosynthesis. *Science* **2007,** *316* (5825), 747-750.
54. Kelbauskas, L.; Chan, N.; Bash, R.; Yodh, J.; Woodbury, N.; Lohr, D., Sequence-dependent nucleosome structure and stability variations detected by Forster resonance energy transfer. *Biochemistry-Us* **2007,** *46* (8), 2239-2248.
55. Katilius, E.; Flores, C.; Woodbury, N. W., Exploring the sequence space of a DNA aptamer using microarrays. *Nucleic Acids Res* **2007,** *35* (22), 7626-7635.
56. Kalman, L.; Haffa, A. L. M.; Williams, J. C.; Woodbury, N. W.; Allen, J. P., Reduction of the oxidized bacteriochlorophyll dimer in reaction centers by ferrocene is dependent upon the driving force. *J Porphyr Phthalocya* **2007,** *11* (3-4), 205-211.
57. Gibasiewicz, K.; Ramesh, V. M.; Lin, S.; Redding, K.; Woodbury, N. W.; Webber, A. N., Two equilibration pools of chlorophylls in the Photosystem I core antenna of Chlamydomonas reinhardtii. *Photosynth Res* **2007,** *92* (1), 55-63.
58. Chan, N.; Debartolo, P.; Lohr, D.; Woodbury, N., Dependence of nucleosome structure and stability on the DNA sequence detected in vitro by foster resonance energy transfer. *Biophys J* **2007**, 14a-15a.
59. Wang, H. Y.; Lin, S.; Woodbury, N. W., Electronic transitions of the Soret band of reaction centers from Rhodobacter sphaeroides studied by femtosecond transient absorbance spectroscopy. *J Phys Chem B* **2006,** *110* (13), 6956-6961.
60. Northen, T. R.; Brune, D. C.; Woodbury, N. W., Synthesis and characterization of peptide grafted porous polymer microstructures. *Biomacromolecules* **2006,** *7* (3), 750-754.
61. Lin, S.; Katilius, E.; Ilagan, R. P.; Gibson, G. N.; Frank, H. A.; Woodbury, N. W., Mechanism of carotenoid singlet excited state energy transfer in modified bacterial reaction centers. *J Phys Chem B* **2006,** *110* (31), 15556-15563.
62. Katilius, E.; Woodbury, N. W., Multiphoton excitation of fluorescent DNA base analogs. *J Biomed Opt* **2006,** *11* (4).
63. Katilius, E.; Katiliene, Z.; Woodbury, N. W., Signaling aptamers created using fluorescent nucleotide analogues. *Anal Chem* **2006,** *78* (18), 6484-6489.
64. Woodbury, N. W.; Northen, T.; Scruggs, A.; Katilius, E.; Flores, C.; Lappe, A., Optically directed molecular evolution. *Abstr Pap Am Chem S* **2005,** *230*, U2824-U2824.
65. Scruggs, A. W.; Flores, C. L.; Wachter, R.; Woodbury, N. W., Development and characterization of green fluorescent protein mutants with altered lifetimes. *Biochemistry-Us* **2005,** *44* (40), 13377-13384.
66. Northen, T. R.; Woodbury, N. W., Light-directed movement of polymer microstructures. *Langmuir* **2005,** *21* (11), 4949-4953.

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71. Katilius, E.; Babendure, J. L.; Lin, S.; Woodbury, N. W., Electron transfer dynamics in Rhodobacter sphaeroides reaction center mutants with a modified ligand for the monomer bacteriochlorophyll on the active side. *Photosynth Res* **2004,** *81* (2), 165-180.
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73. Haffa, A. L. M.; Lin, S.; Williams, J. C.; Bowen, B. P.; Taguchi, A. K. W.; Allen, J. P.; Woodbury, N. W., Controlling the pathway of photosynthetic charge separation in bacterial reaction centers. *J Phys Chem B* **2004,** *108* (1), 4-7.
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75. Scruggs, A. W.; Woodbury, N. W., Optical processing of bacterial libraries for directed evolution. *Biotechnol Bioeng* **2003,** *84* (4), 445-451.
76. Montano, G. A.; Bowen, B. P.; LaBelle, J. T.; Woodbury, N. W.; Pizziconi, V. B.; Blankenship, R. E., Characterization of Chlorobium tepidum chlorosomes: A calculation of bacteriochlorophyll c per chlorosome and oligomer modeling. *Biophys J* **2003,** *85* (4), 2560-2565.
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